

CLAIMS

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1. A marking composition, comprising:
a polymerizable first material that comprises silicon; and
a second material capable of extending polymeric chains of the first material,
wherein the marking composition is capable of undergoing a change that can be
detected optically when the composition is contacted with energy.
 2. The composition of claim 1, wherein the second material is capable of
crosslinking with the first material.
 3. The composition of claim 1, wherein the second material comprises a polyol.
 4. The composition of claim 1, wherein the second material is selected from a
group consisting of a diol and a triol.
 5. The composition of claim 1, wherein the first material comprises a silicone
resin.
 6. The composition of claim 1, wherein the first material comprises a combined
aromatic and aliphatic substituted silicone resin.
 7. The composition of claim 1, wherein the first material comprises a phenyl
methyl silicone resin.
 8. The composition of claim 7, wherein the ratio of phenyl to methyl groups is
between about 0.4:1 and 2.1:1.
 9. The composition of claim 1, further comprising a crosslinking agent.
 10. The composition of claim 9, wherein the crosslinking agent comprises a silane.

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11. The composition of claim 1, further comprising a blocked crosslinking agent.
12. The composition of claim 11, wherein the blocked crosslinking agent comprises a carbamate.
13. The composition of claim 1, further comprising a catalyst.
14. The composition of claim 13, wherein the catalyst is selected from a group consisting of a platinum-based catalyst, a zinc-based catalyst, and a Lewis acid.
15. The composition of claim 1, further comprising an optical tag.
16. A marking composition, comprising:
a polymerizable silicone resin;
a crosslinking agent capable of crosslinking with the resin; and
a polyol capable of extending polymeric chains of the silicone resin,
wherein the marking composition is capable of undergoing a change that can be detected optically when the composition is contacted with energy.
17. The composition of claim 16, wherein the polyol is selected from a group consisting of a diol and a triol.
18. The composition of claim 16, wherein the resin comprises a combined aromatic and aliphatic substituted silicone resin.
19. The composition of claim 16, wherein the resin comprises a phenyl methyl silicone resin.
20. The composition of claim 19, wherein the ratio of phenyl to methyl groups is between about 0.4:1 and 2.1:1.

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 21. The composition of claim 16, wherein the crosslinking agent comprises a silane.
 22. The composition of claim 16, wherein the crosslinking agent is blocked.
 23. The composition of claim 22, wherein the crosslinking agent comprises a carbamate.
 24. The composition of claim 16, further comprising a catalyst.
 25. The composition of claim 24, wherein the catalyst is selected from a group consisting of platinum-based catalyst and zinc-based catalyst.
 26. The composition of claim 16, comprising about 10 to about 90 percent of the resin; about 0.1 to about 9 percent of the crosslinking agent; and about 1 to about 10 percent of the polyol.
 27. A method of marking a substrate, the method comprising: contacting the substrate with a composition comprising: a polymerizable first material that comprises silicon; and a second material capable of extending chains of the first material; and contacting the composition with energy to produce a change in the composition that can be detected optically.
 28. The method of claim 27, wherein the first material comprises a silicone resin and the second material comprises a polyol.
 29. The method of claim 27, further comprising curing the composition.
 30. The method of claim 27, further comprising contacting the substrate with a second composition comprising a crosslinking agent.

31. The method of claim 30, wherein the crosslinking agent comprises a silane.
32. The method of claim 27, wherein the substrate is a beverage can.
33. The method of claim 27, wherein contacting the composition with energy comprises forming a marking indicative of a date.
34. The method of claim 27, wherein the energy is delivered from a laser.
35. An article, comprising:
a substrate; and
a marking composition on the substrate, the composition comprising
a polymerizable first material that comprises silicon; and
a second material capable of extending polymeric chains of the first material,
wherein the marking composition is capable of undergoing a change that can be
detected optically when the composition is contacted with energy.
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36. The article of claim 35, wherein the second material is capable of crosslinking with the first material.
37. The article of claim 35, wherein the second material comprises a polyol.
38. The article of claim 35, wherein the second material is selected from a group consisting of a diol and a triol.
39. The article of claim 35, wherein the first material comprises a silicone resin.
40. The article of claim 35, wherein the first material comprises a combined aromatic and aliphatic substituted silicone resin.

41. The article of claim 35, wherein the first material comprises a phenyl methyl silicone resin.

42. The article of claim 41, wherein the ratio of phenyl to methyl groups is between about 0.4:1 and 2.1:1.

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47 43. The article of claim 35, further comprising a crosslinking agent.

44. The article of claim 43, wherein the crosslinking agent comprises a silane.

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C7 45. The article of claim 35, further comprising a blocked crosslinking agent.

46. The article of claim 45, wherein the blocked crosslinking agent comprises a carbamate.

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C8 47. The article of claim 35, further comprising a catalyst.

48. The article of claim 47, wherein the catalyst is selected from a group consisting of a platinum-based catalyst, a zinc-based catalyst, and a Lewis acid.

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C9 49. The article of claim 35, further comprising an optical tag.

50. The article of claim 35, wherein the substrate comprises a metal.

51. The article of claim 35, wherein the substrate is a beverage can.

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